



A service of the National Library of Medicine  
and the National Institutes of Health

My NCBI  
[Sign In] [Reg]

All Databases PubMed Nucleotide Protein Genome Structure OMIM PMC Journals B

Search   for

Limits  Preview/Index  History  Clipboard  Details

Display   Show   Sort by  Send to

All: 1 Review: 0

About Entrez  
NCBI Toolbar

Text Version

Entrez PubMed  
Overview  
Help | FAQ  
Tutorials  
New/Noteworthy  
E-Utilities

PubMed Services  
Journals Database  
MeSH Database  
Single Citation Matcher  
Batch Citation Matcher  
Clinical Queries  
Special Queries  
LinkOut  
My NCBI

Related Resources  
Order Documents  
NLM Mobile  
NLM Catalog  
NLM Gateway  
TOXNET  
Consumer Health  
Clinical Alerts  
ClinicalTrials.gov  
PubMed Central

1: [J Gen Microbiol. 1983 Aug;129\(8\):2521-9.](#) Related Articles, Links

## The effect of beta-galactosides on the protonmotive force and growth of *Escherichia coli*.

**Ahmed S, Booth IR.**

The effect of three beta-galactosides on the components membrane potential ( $\Delta\psi$ ) and pH gradient ( $\Delta\text{pH}$ ) of protonmotive force and growth of *Escherichia coli* has been examined. A good correlation between the reduction of the protonmotive force and growth inhibition was observed. Thus some galactosides had little effect on either the protonmotive force or growth while lactose diminished the protonmotive force and caused growth inhibition. This effect of lactose was dependent on the ionic composition of the growth media. In Medium A (77 mM-Na<sup>+</sup>, 85 mM-K<sup>+</sup>) lactose diminished  $\Delta\psi$  but had no effect on  $\Delta\text{pH}$ . Growth inhibition was transient at an external pH 6.0 but complete at pH 7.5. In medium KA (approximately 1 mM-Na<sup>+</sup>, 162 mM-K<sup>+</sup>)  $\Delta\text{pH}$  was diminished and  $\Delta\psi$  was not affected and consequently growth inhibition was complete at pH 6.0. In medium NA (163 mM-Na<sup>+</sup>, 20 mM-K<sup>+</sup>) lactose had little effect on  $\Delta\psi$ ,  $\Delta\text{pH}$  or growth. These data support Skulachev's hypothesis of buffering of the protonmotive force by K<sup>+</sup> and Na<sup>+</sup> gradients.

PMID: 6313859 [PubMed - indexed for MEDLINE]

Display   Show   Sort by  Send to

[Write to the Help Desk](#)

NCBI | NLM | NIH

Department of Health & Human Services

[Privacy Statement](#) | [Freedom of Information Act](#) | [Disclaimer](#)

May 22 2006 06:31:57